



SEQUENCE LISTING

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TECH CENTER 1600/2900

(1) GENERAL INFORMATION:

- (i) APPLICANT: Weiner, Amy J.  
Houghton, Michael
- (ii) TITLE OF INVENTION: Conserved Motif of Hepatitis C Virus  
E2/NS1 Region
- (iii) NUMBER OF SEQUENCES: 134
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: Chiron Corporation
  - (B) STREET: 4560 Horton Street
  - (C) CITY: Emeryville
  - (D) STATE: CA
  - (E) COUNTRY: USA
  - (F) ZIP: 94608-2916
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: IBM PC compatible
  - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
  - (D) SOFTWARE: PatentIn Release #1.0, Version #1.25
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: US 08/823,980
  - (B) FILING DATE: 25-MARCH-1997
  - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Robins, Roberta L.
  - (B) REGISTRATION NUMBER: 33,208
  - (C) REFERENCE/DOCKET NUMBER: CHIR-0108
- (ix) TELECOMMUNICATION INFORMATION:
  - (A) TELEPHONE: 650-325-7812
  - (B) TELEFAX: 650-325-7823

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 6 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide
- (ix) FEATURE:
  - (A) NAME/KEY: Xaa
  - (B) LOCATION: 1
  - (D) OTHER INFORMATION: /label= variable  
/note= "Represents Ala, Arg, Asp, Gly, Lys, Ser,

or Thr"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 2
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Ile, Leu, Met, Phe or Trp"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 3
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Leu or Phe"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 6
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Ala or Gly"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Xaa Xaa Xaa Xaa Xaa Xaa  
1 5

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 32 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /label= Dpr  
/note= 2,3-diaminopropionic is acetyl cysteine

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 2
- (D) OTHER INFORMATION: /label= Ahe  
/note= 2-amino heptanoic is butyl alanine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Xaa Xaa Glu Thr His Val Thr Gly Gly Ser Ala Gly His Thr Val Ser  
1 5 10 15

Gly	Phe	Val	Ser	Leu	Leu	Ala	Pro	Gly	Ala	Lys	Gln	Asn	Val	Gln	Leu
				20				25					30		

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 5 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Val	Ser	Leu	Leu	Ala
1				5

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 7 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Ser	Leu	Leu	Ala	Pro	Gly	Ala
1				5		

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 5 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Leu Ala Pro Gly Ala

## (2) INFORMATION FOR SEQ ID NO:6:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 7
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Ala, Pro or Ser"

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Ser Leu Leu Xaa Xaa Gly Xaa  
1 5

## (2) INFORMATION FOR SEQ ID NO:7:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: peptide

## (ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 7
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Ala, Pro or Ser"

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Ser Leu Phe Xaa Xaa Gly Xaa  
1 5

## (2) INFORMATION FOR SEQ ID NO:8:

## (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid

- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 3
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 8
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 14
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 16
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 17
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 21
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 22
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 24
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 27
- (D) OTHER INFORMATION: /label= variable  
/note= "Represents Any Amino Acid"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Xaa	Thr	Xaa	Val	Thr	Gly	Gly	Xaa	Ala	Ala	Arg	Thr	Thr	Xaa	Gly	Xaa
1				5				10					15		
Xaa	Ser	Leu	Phe	Xaa	Xaa	Gly	Xaa	Ser	Gln	Xaa	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Ala	Thr	Tyr	Ala	Thr	Gly	Ala	Ala	Gln	Gly	His	Ala	Thr	Asn	Ser	Phe
1				5				10					15		
Val	Ser	Leu	Phe	Arg	Ser	Gly	Ala	Ser	Gln	Asn	Leu	Lys	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Ser	Thr	Gln	Val	Thr	Gly	Gly	Gln	Ala	Ala	His	Thr	Val	Arg	Gly	Val
1				5				10					15		
Ala	Ser	Ile	Phe	Ser	Pro	Gly	Ser	Arg	Gln	Asp	Ile	Ser	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Ser	Thr	Arg	Val	Thr	Gly	Gly	Gln	Gln	Gly	Arg	Ala	Val	His	Gly	Ile
1				5					10					15	
Ala	Ser	Leu	Phe	Ser	Leu	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Ser	Thr	His	Val	Met	Gly	Ala	Gln	Gln	Gly	Arg	Val	Ala	Lys	Gly	Phe
1				5					10					15	
Thr	Ser	Leu	Phe	Gly	Pro	Gly	Pro	Ala	Gln	Lys	Ile	Gly	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Ser	Thr	His	Val	Thr	Gly	Ala	Val	Gln	Gly	His	Ser	Ile	Arg	Gly	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Thr	Ser	Gly	Pro	Ala	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Glu	Thr	His	Val	Thr	Gly	Gly	Ile	Ala	Ala	Lys	Thr	Thr	Ala	Ser	Leu
1				5				10						15	
Thr	Gly	Leu	Phe	Asn	Leu	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Glu	Thr	His	Val	Thr	Gly	Gly	Asn	Ala	Gly	Arg	Ala	Ala	Ala	Gly	Ile
1				5				10						15	
Ala	Gly	Leu	Phe	Thr	Leu	Gly	Ala	Lys	Gln	Asn	Val	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Gln	Thr	Arg	Val	Thr	Gly	Gly	Thr	Ala	Ala	Gln	Ser	Thr	Ala	Arg	Ile
1				5				10						15	
Ala	Gly	Leu	Phe	Ser	Leu	Gly	Ala	Arg	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:17:



- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Gln	Thr	His	Val	Met	Gly	Gly	Thr	Ala	Gly	Arg	Asn	Ala	Tyr	Gly	Leu
1				5				10						15	
Thr	Ser	Phe	Leu	Ser	Val	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Glu	Thr	His	Val	Met	Gly	Gly	Ala	Ala	Ser	Ser	Thr	Thr	Tyr	Arg	Phe
1				5				10						15	
Ala	Ser	Leu	Phe	Thr	Ser	Gly	Pro	Ala	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:19:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Glu	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Ala	Ser	Thr	Thr	Ala	Thr	Phe
1				5				10						15	
Ser	Lys	Leu	Phe	Met	Pro	Gly	Ala	Ser	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:20:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Gly	Thr	Thr	Arg	Val	Gly	Gly	Ala	Ala	Ala	Arg	Thr	Thr	Ser	Ser	Phe
1				5					10					15	
Ala	Ser	Leu	Leu	Thr	His	Gly	Pro	Ser	Gln	Asn	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:21:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Gly	Thr	His	Val	Thr	Gly	Gly	Ala	Ala	Ala	Arg	Asp	Ala	Phe	Arg	Phe
1				5					10					15	
Ser	Ser	Leu	Phe	Thr	Arg	Gly	Pro	Ser	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:22:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Ala	Thr	Asn	Met	Thr	Gly	Gly	Ala	Pro	Ala	Arg	Thr	Thr	Tyr	Lys	Leu
1				5					10					15	
Thr	Thr	Leu	Phe	Ser	Tyr	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:23:

- (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

His	Asn	His	Val	Thr	Gly	Gly	Thr	Ser	Ala	Arg	Asn	Thr	Phe	Gly	Ile
1			5					10					15		
Thr	Thr	Leu	Phe	Thr	Gln	Gly	Pro	Ser	Gln	Lys	Leu	Gln	Leu	Val	
		20					25					30			

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Gly	Thr	His	Val	Thr	Gly	Gly	Ala	Ala	Ala	Arg	Asn	Ala	His	Ser	Leu
1			5				10						15		
Thr	Ser	Leu	Leu	Ala	Pro	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
		20					25					30			

(2) INFORMATION FOR SEQ ID NO:25:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Thr	Thr	Arg	Val	Ser	Gly	Gly	Thr	Ala	Ala	His	Thr	Thr	Ala	Gly	Leu
1			5					10					15		
Thr	Ser	Leu	Phe	Ser	Pro	Gly	Pro	Arg	Gln	Asn	Ile	His	Leu	Val	
		20					25					30			

(2) INFORMATION FOR SEQ ID NO:26:

- (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Thr	Thr	His	Val	Ser	Gly	Gly	Thr	Ala	Gly	Arg	Thr	Thr	Ala	Ser	Leu
1				5				10					15		
Thr	Ser	Phe	Phe	Ala	Pro	Gly	Ala	Ser	Gln	Arg	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:27:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Thr	Thr	His	Val	Thr	Gly	Gly	Ala	Thr	Gly	His	Thr	Thr	Ser	Gly	Ile
1				5				10					15		
Ala	Ser	Leu	Phe	Leu	Pro	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:28:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Asp	Thr	Tyr	Ala	Ser	Gly	Gly	Ala	Gln	Gly	Arg	Ser	Thr	Leu	Gly	Phe
1				5				10					15		
Thr	Ser	Leu	Phe	Thr	Pro	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:29:

- (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

```

Asp Thr Tyr Ala Ser Gly Gly Ala Ala Gly Arg Ala Thr Tyr Gly Ile
1           5           10           15

Thr Ser Leu Phe Ala Pro Gly Ala Ser Gln Asn Ile Gln Leu Ile
          20           25           30

```

(2) INFORMATION FOR SEQ ID NO:30:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

```

Arg Thr Tyr Ala Ser Gly Gly Ala Ala Gly Arg Thr Thr His Gly Phe
1           5           10           15

Thr Ser Leu Phe Ser Thr Gly Ala Arg Gln Asn Ile Gln Leu Ile
          20           25           30

```

(2) INFORMATION FOR SEQ ID NO:31:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

```

Gln Thr Tyr Val Thr Gly Gly Lys Ala Ala Gln Thr Val Ser Gly Phe
1           5           10           15

Thr Gly Leu Phe Ser Ser Gly Pro Ser Gln Lys Ile Gln Leu Ile
          20           25           30

```

(2) INFORMATION FOR SEQ ID NO:32:

- (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Asp	Thr	Tyr	Val	Ser	Gly	Gly	Ala	Ala	Ala	Arg	Ser	Ile	Ser	Gly	Phe
1				5					10					15	
Thr	Ser	Leu	Phe	Thr	Pro	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20						25					30	

(2) INFORMATION FOR SEQ ID NO:33:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Ser	Thr	Tyr	Val	Thr	Gly	Gly	Glu	Ala	Ser	Arg	Thr	Thr	Arg	Gly	Phe
1				5						10				15	
Ala	Ser	Leu	Phe	Thr	Leu	Gly	Ser	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
			20						25					30	

(2) INFORMATION FOR SEQ ID NO:34:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Asn	Thr	Tyr	Val	Thr	Gly	Gly	Ser	Ala	Gly	Arg	Ala	Val	Ala	Gly	Phe
1				5						10				15	
Ala	Gly	Leu	Leu	Gln	Pro	Gly	Ala	Lys	Gln	Asn	Val	Gln	Leu	Ile	
			20						25					30	

(2) INFORMATION FOR SEQ ID NO:35:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids

- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

His	Thr	Arg	Val	Thr	Gly	Gly	Gln	Val	Ala	Phe	Arg	Thr	His	Gly	Leu
1				5					10					15	
Val	Ser	Leu	Phe	Thr	Gln	Gly	Pro	Ser	Gln	Lys	Ile	Gln	Leu	Val	
		20					25						30		

(2) INFORMATION FOR SEQ ID NO:36:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

His	Thr	His	Val	Thr	Gly	Gly	Arg	Val	Ala	Ser	Ser	Thr	Gln	Ser	Leu
1				5					10					15	
Val	Ser	Trp	Leu	Ser	Gln	Gly	Pro	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20				25						30		

(2) INFORMATION FOR SEQ ID NO:37:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

His	Thr	Arg	Val	Thr	Gly	Gly	Val	Gln	Gly	His	Val	Thr	Ser	Thr	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Arg	Pro	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20				25						30		

(2) INFORMATION FOR SEQ ID NO:38:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids

- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

Asn	Thr	Arg	Val	Thr	Gly	Gly	Val	Gln	Gly	Arg	Asp	Thr	Ser	Gly	Leu
1				5				10					15		
Val	Ser	Leu	Phe	Ser	Leu	Gly	Pro	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:39:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

Asp	Thr	His	Val	Thr	Gly	Gly	Ala	Gln	Ala	Lys	Thr	Thr	Asn	Arg	Leu
1				5				10					15		
Val	Ser	Met	Phe	Ala	Ser	Gly	Pro	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:40:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

Glu	Thr	His	Val	Thr	Gly	Gly	Ala	Ser	Ala	Arg	Thr	Thr	Gln	Arg	Phe
1				5				10					15		
Thr	Ser	Phe	Phe	Asp	Leu	Gly	Pro	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:41:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids



- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Thr	Thr	Tyr	Met	Thr	Gly	Gly	Ala	Asn	Ala	Arg	Thr	Thr	Gln	Gly	Phe
1				5				10					15		
Val	Ser	Leu	Phe	Thr	Pro	Gly	Pro	Ala	Gln	Lys	Ile	Gln	Leu	Val	
			20				25						30		

(2) INFORMATION FOR SEQ ID NO:42:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Glu	Thr	His	Val	Thr	Gly	Gly	Thr	Ser	Ala	Arg	Thr	Thr	Gln	Gly	Phe
1				5				10					15		
Val	Ser	Leu	Phe	Ser	Ala	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20				25						30		

(2) INFORMATION FOR SEQ ID NO:43:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

Gly	Thr	His	Val	Thr	Gly	Gly	Gln	Ala	Ala	Arg	Thr	Thr	Gln	Ser	Phe
1				5				10					15		
Thr	Ser	Leu	Phe	Ser	Pro	Gly	Pro	Gln	Gln	Lys	Ile	Gln	Leu	Ile	
			20				25						30		

(2) INFORMATION FOR SEQ ID NO:44:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids

- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Arg	Thr	His	Val	Thr	Gly	Gly	Lys	Ala	Ala	His	Thr	Thr	Lys	Gly	Phe
1				5				10						15	
Ala	Ser	Leu	Phe	Thr	Pro	Gly	Pro	Ser	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:45:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

Glu	Thr	Arg	Val	Thr	Gly	Ala	Val	Gln	Gly	His	Gly	Ala	Leu	Gly	Leu
1				5				10						15	
Ala	Ser	Leu	Phe	Thr	Pro	Gly	Pro	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:46:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

Glu	Thr	Arg	Val	Thr	Gly	Ala	Ile	Ala	Gly	Arg	Thr	Ala	Ser	Ser	Phe
1				5				10						15	
Ala	Gly	Leu	Phe	Thr	Ser	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:47:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid

- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

Glu	Thr	Arg	Val	Thr	Gly	Gln	Gln	Val	Gly	Arg	Thr	Thr	Gln	Ser	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Thr	Pro	Gly	Pro	Ser	Gln	Thr	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:48:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

Gln	Thr	Arg	Val	Thr	Gly	Ala	Gln	Val	Gly	Arg	Thr	Thr	Ser	Ser	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Thr	Pro	Gly	Pro	Ser	Gln	Asn	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:49:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

Arg	Thr	Gln	Val	Thr	Gly	Ala	Gln	Ala	Gly	His	Thr	Thr	Ser	Gly	Leu
1				5					10					15	
Ala	Ser	Leu	Phe	Thr	Pro	Gly	Pro	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:50:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid

(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

Glu	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Gly	His	Thr	Val	Ser	Gly	Phe
1				5					10					15	
Val	Ser	Leu	Leu	Ala	Pro	Gly	Ala	Lys	Gln	Asn	Val	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

Glu	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Gly	His	Thr	Val	Thr	Gly	Ile
1				5					10					15	
Ala	Ser	Leu	Phe	Thr	Ser	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

Ser	Thr	His	Val	Thr	Gly	Gly	Thr	Ala	Ala	His	Thr	Val	Ala	Gly	Phe
1				5					10					15	
Ser	Ser	Leu	Phe	Thr	Val	Gly	Pro	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid

(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

Glu	Thr	His	Val	Thr	Gly	Gly	Ala	Ala	Ala	Tyr	Thr	Ala	Ala	Gly	Leu
1				5					10					15	
Ala	Ser	Leu	Phe	Thr	Ser	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25						30	

(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

Glu	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Gly	Arg	Thr	Thr	Ala	Gly	Leu
1				5					10					15	
Val	Gly	Leu	Leu	Thr	Pro	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25						30	

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

Gly	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Gly	Arg	Ala	Thr	Ala	Gly	Ile
1				5					10					15	
Ala	Gly	Leu	Leu	Thr	Pro	Gly	Ala	Arg	Gln	Asn	Ile	Gln	Leu	Val	
			20					25						30	

(2) INFORMATION FOR SEQ ID NO:56:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

Lys	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Ala	Arg	Thr	Thr	Ser	Gly	Ile
1				5				10						15	
Ala	Ser	Leu	Leu	Thr	Pro	Gly	Ala	Lys	Gln	Asn	Val	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:57:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

Lys	Thr	Tyr	Val	Thr	Gly	Gly	Ser	Gln	Ala	Gln	Ala	Thr	Phe	Gly	Phe
1				5				10						15	
Thr	Ser	Leu	Leu	Gln	Gln	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:58:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

Glu	Thr	Thr	Val	Thr	Gly	Gly	Ser	Ala	Ala	His	Gly	Ala	Leu	Gly	Ile
1				5				10						15	
Ala	Ser	Leu	Phe	Asn	Gln	Gly	Ala	Arg	Gln	Asn	Ile	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:59:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

Glu	Thr	Tyr	Val	Thr	Gly	Gly	Ala	Ser	Ala	Arg	Ser	Thr	Phe	Thr	Leu
1				5				10					15		
Val	Gly	Leu	Phe	Lys	Gln	Gly	Ser	Gln	Gln	Asn	Ile	Gln	Leu	Val	
		20					25						30		

(2) INFORMATION FOR SEQ ID NO:60:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

Gln	Thr	Tyr	Val	Ser	Gly	Gly	Ser	Ser	Gly	Arg	Thr	Thr	Ser	Gly	Leu
1				5				10					15		
Val	Ser	Ile	Phe	Ser	Pro	Gly	Ala	Ser	Gln	Asn	Leu	Gln	Leu	Ile	
		20					25						30		

(2) INFORMATION FOR SEQ ID NO:61:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

Glu	Thr	Tyr	Val	Ser	Gly	Gly	Ala	Ala	Ala	Gln	Thr	Thr	Ala	Arg	Phe
1				5				10					15		
Ala	Gly	Phe	Phe	Gln	Ser	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
		20					25						30		

(2) INFORMATION FOR SEQ ID NO:62:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

Glu	Thr	Tyr	Val	Ser	Gly	Gly	Ser	Ala	Ala	Gln	Thr	Thr	Ala	Gly	Phe
1				5				10						15	
Val	Arg	Leu	Phe	Glu	Thr	Gly	Pro	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:63:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

Ser	Thr	Tyr	Val	Ser	Gly	Gly	Ala	Gln	Ala	Arg	Ala	Ala	Gln	Gly	Ile
1				5				10						15	
Thr	Ser	Leu	Phe	Ser	Arg	Gly	Ser	Ser	Gln	Lys	Ile	Gln	Leu	Val	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:64:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

Ser	Thr	Tyr	Val	Thr	Gly	Gly	Thr	Gln	Gly	Arg	Ala	Ala	Ser	Gly	Leu
1				5				10						15	
Thr	Ser	Leu	Phe	Ser	Ala	Gly	Ala	Ser	Gln	Asn	Ile	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:65:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single



(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

Asn	Thr	Tyr	Val	Ser	Gly	Gly	Thr	Ala	Gly	His	Thr	Gly	His	Gly	Leu
1				5				10					15		
Thr	Ala	Leu	Phe	Ser	Pro	Gly	Ala	Ser	Gln	Asn	Ile	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:66:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

Ser	Thr	Ile	Val	Ser	Gly	Gly	Thr	Val	Ala	Arg	Thr	Thr	His	Ser	Leu
1				5				10					15		
Ala	Ser	Leu	Phe	Thr	Gln	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Ile	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:67:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:

Glu	Thr	Tyr	Thr	Ser	Gly	Gly	Ala	Ala	Ser	His	Thr	Thr	Ser	Thr	Leu
1				5				10					15		
Ala	Ser	Leu	Phe	Ser	Pro	Gly	Ala	Ser	Gln	Arg	Ile	Gln	Leu	Val	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:68:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

His Thr Leu Thr Thr Gly Gly His Ala Ala Arg Leu Thr Ser Gly Phe  
1 5 10 15  
Ala Gly Leu Phe Thr Pro Gly Pro Ser Gln Arg Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:69:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

Glu Thr Ile Val Ser Gly Gly Gln Ala Ala Arg Ala Met Ser Gly Leu  
1 5 10 15  
Val Ser Leu Phe Thr Pro Gly Ala Lys Gln Asn Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:70:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:

Glu Thr Tyr Thr Ser Gly Gly Asn Ala Gly His Thr Met Thr Gly Ile  
1 5 10 15  
Val Arg Phe Phe Ala Pro Gly Pro Lys Gln Asn Val His Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:71:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

Thr Thr Tyr Thr Thr Gly Gly Asn Ala Ala Arg Thr Thr Gln Ala Leu  
1 5 10 15  
Thr Ser Phe Phe Ser Pro Gly Ala Lys Gln Asp Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:72:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:

Glu Thr Tyr Thr Thr Gly Gly Ser Thr Ala Arg Thr Thr Gln Gly Leu  
1 5 10 15  
Val Ser Leu Phe Ser Arg Gly Ala Lys Gln Asp Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:73:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:73:

Ala Thr Tyr Thr Ser Gly Gly Ser Ala Ala Arg Thr Thr Gln Gly Phe  
1 5 10 15  
Ala Ser Leu Phe Ser Leu Gly Ser Gln Gln Lys Ile Gln Leu Val  
20 25 30

(2) INFORMATION FOR SEQ ID NO:74:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:74:

Ala Thr Tyr Thr Thr Gly Gly Ser Val Ala Arg Thr Thr His Gly Phe  
1 5 10 15  
Ser Ser Leu Phe Ser Gln Gly Ala Lys Gln Asn Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:75:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:75:

Val Thr Tyr Thr Thr Gly Gly Ser Gln Ala Arg His Thr Gln Ser Val  
1 5 10 15  
Thr Ser Phe Phe Thr Gln Gly Pro Ala Gln Arg Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:76:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:76:

His Thr Tyr Thr Thr Gly Gly Thr Val Ala Arg Ser Thr Gln Gly Leu  
1 5 10 15  
Val Gly Phe Leu Ser Pro Gly Pro Ser Gln Asn Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:77:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:77:

Thr	Thr	Tyr	Val	Ser	Val	Gly	His	Ala	Ser	Gln	Thr	Thr	Arg	Arg	Val
1				5					10					15	
Ala	Ser	Phe	Phe	Ser	Pro	Gly	Ser	Ala	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:78:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:78:

Thr	Thr	Thr	Val	Ser	Gly	Gly	His	Ala	Ser	Gln	Ile	Thr	Arg	Gly	Val
1				5					10					15	
Thr	Ser	Phe	Phe	Ser	Pro	Gly	Ser	Ala	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:79:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:79:

Lys	Thr	Ser	Leu	Thr	Gly	Val	Thr	Arg	Ala	Arg	Ala	Ala	Ala	Arg	Leu
1				5					10					15	
Thr	Ala	Leu	Phe	Ser	Ser	Gly	Pro	Ser	Gln	Arg	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:80:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:80:

Gly	Thr	Ser	Leu	Thr	Gly	Gly	Ala	Arg	Ala	Arg	Ala	Ala	Ser	Gly	Leu
1				5				10						15	
Ala	Gly	Leu	Phe	Ser	Ser	Gly	Pro	Ser	Gln	Arg	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:81:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:81:

Val	Thr	Gln	Val	Ser	Pro	Pro	Gln	Ala	Gly	Tyr	Thr	Thr	Ser	Val	Leu
1				5				10						15	
Thr	Gly	Ile	Leu	Ser	Pro	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:82:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:82:

Val	Thr	Gln	Val	Ser	Gly	Gly	Gln	Ala	Gly	Tyr	Thr	Thr	Ser	Val	Leu
1				5				10						15	
Thr	Gly	Ile	Leu	Ser	Pro	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:83:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83:

Gly Thr Tyr Thr Val Gly Gly Ala Ser Ala Phe Thr Thr Ser Arg Leu  
1 5 10 15  
Thr Ser Leu Phe Ala Leu Gly Pro Ser Gln Arg Ile Gln Leu Val  
20 25 30

(2) INFORMATION FOR SEQ ID NO:84:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:84:

Asn Thr His Thr Val Gly Gly Thr Glu Gly Phe Ala Thr Gln Arg Leu  
1 5 10 15  
Thr Ser Leu Phe Ala Leu Gly Pro Ser Gln Lys Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:85:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:85:

Ser Thr Arg Thr Ala Gly Gly Ala Gln Ala Phe Asn Thr Tyr Gly Val  
1 5 10 15  
Ala Ser Ile Phe Ser Pro Gly Pro Ser Gln Arg Ile Gln Leu Val  
20 25 30

(2) INFORMATION FOR SEQ ID NO:86:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:86:

Gln	Thr	His	Thr	Val	Gly	Gly	Ser	Thr	Ala	His	Asn	Ala	Arg	Thr	Leu
1				5					10					15	
Thr	Gly	Met	Phe	Ser	Leu	Gly	Ala	Arg	Gln	Lys	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:87:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:87:

Asn	Thr	Arg	Thr	Val	Ala	Gly	Ser	Ala	Ala	Ala	Thr	Thr	Arg	Gly	Phe
1				5					10					15	
Thr	Ser	Met	Phe	Ser	Ser	Gly	Ser	Lys	Gln	Asn	Leu	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:88:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:88:

Gln	Thr	Arg	Thr	Val	Gly	Gly	Gln	Val	Gly	His	Ser	Val	Arg	Gly	Phe
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Ala	Gly	Ser	Ala	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:89:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide



(xi) SEQUENCE DESCRIPTION: SEQ ID NO:89:

Glu	Thr	His	Thr	Thr	Gly	Ala	Val	Ser	Gly	His	Thr	Thr	Asn	Val	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Ser	Gly	Ser	Ser	Gln	Asn	Ile	Gln	Leu	Ile	
		20					25						30		

(2) INFORMATION FOR SEQ ID NO:90:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:90:

Val	Thr	Arg	Thr	Thr	Gly	Glu	Val	Ala	Ala	Arg	Thr	Ala	Asn	Thr	Phe
1				5					10					15	
Ala	Ser	Leu	Phe	Thr	Thr	Gly	Pro	Ser	Gln	Asn	Ile	Gln	Leu	Ile	
		20					25						30		

(2) INFORMATION FOR SEQ ID NO:91:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:91:

Thr	Thr	Tyr	Ser	Ser	Gly	Gln	Glu	Ala	Gly	Arg	Thr	Val	Ala	Gly	Phe
1				5					10					15	
Ala	Gly	Leu	Phe	Thr	Thr	Gly	Ala	Lys	Gln	Asn	Leu	Tyr	Leu	Ile	
		20					25						30		

(2) INFORMATION FOR SEQ ID NO:92:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:92:

Ser	Thr	Ser	Val	Val	Gly	Gly	Arg	Gln	Ala	Ser	Ala	Thr	Phe	Arg	Phe
1				5					10					15	
Thr	Ser	Phe	Phe	Ser	Arg	Gly	Pro	Thr	Gln	Glu	Ile	Lys	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:93:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:93:

Asn	Thr	Tyr	Thr	Thr	Ala	Gly	Ser	Met	Ala	Gln	Ser	Ile	Tyr	Arg	Leu
1				5					10					15	
Thr	Asp	Ile	Phe	Ser	Thr	Gly	Pro	Ser	Gln	Lys	Leu	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:94:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:94:

Arg	Thr	Ile	Leu	Met	Ala	Gly	Arg	Gln	Ala	Glu	Val	Thr	Gln	Ser	Phe
1				5					10					15	
Pro	Gly	Leu	Phe	Ser	Leu	Ala	Pro	Ser	Gln	Lys	Ile	His	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:95:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:95:

Asp Thr Tyr Ala Thr Gly Gly Ser Val Ala Ser Ile Met Ala Gly Ile  
1 5 10 15

Ala Arg Phe Phe Ser Pro Gly Ala Arg Gln Asp Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:96:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:96:

Glu Thr Tyr Ala Thr Gly Ala Ser Ala Gly His Asp Val Ser Ser Phe  
1 5 10 15

Ala Arg Leu Phe Ala Pro Gly Ala Arg Gln Asn Ile Gln Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:97:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:97:

Glu Thr His Arg Thr Gly Gly Ser Ala Ala Arg Ser Thr Ala Gly Val  
1 5 10 15

Ala Ser Leu Phe Thr Pro Gly Ala Arg Gln Asn Ile Gln Leu Ile  
20 25 30

(2) INFORMATION FOR SEQ ID NO:98:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:98:

Asn	Thr	Arg	Ala	Val	Gly	Met	Val	Gln	Ser	Arg	Thr	Thr	Tyr	Ala	Leu
1				5				10						15	
Thr	Ser	Leu	Phe	Asp	Ser	Gly	Ala	Ala	Gln	Lys	Leu	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:99:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:99:

Glu	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Gly	Arg	Thr	Thr	Ala	Gly	Leu
1				5				10						15	
Val	Gly	Leu	Leu	Thr	Pro	Gly	Ala	Lys	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:100:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:100:

Glu	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Gly	Arg	Ser	Val	Leu	Gly	Ile	Ala
1				5				10						15		
Ser	Phe	Leu	Thr	Arg	Gly	Pro	Lys	Gln	Asn	Ile	Gln	Leu	Ile			
			20					25					30			

(2) INFORMATION FOR SEQ ID NO:101:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:101:

Glu	Thr	Tyr	Thr	Ser	Gly	Gly	Ala	Ala	Ser	His	Thr	Thr	Ser	Thr	Leu
1				5					10					15	
Ala	Ser	Leu	Phe	Ser	Pro	Gly	Ala	Ser	Gln	Arg	Ile	Gln	Leu	Val	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:102:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:102:

Ala	Thr	Tyr	Thr	Ser	Gly	Gly	Val	Ala	Ser	His	Thr	Thr	Ser	Arg	Phe
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Ser	Gly	Ala	Ser	Gln	Arg	Ile	Gln	Leu	Val	
		20						25					30		

(2) INFORMATION FOR SEQ ID NO:103:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:103:

Ala	Thr	Tyr	Thr	Ser	Gly	Ala	Val	Ala	Ser	His	Thr	Thr	Ser	Arg	Phe
1				5					10					15	

Thr Ser Phe Phe Ser Ser Gly Ala Ser Gln Arg Ile Gln Leu Val  
20 25 30

(2) INFORMATION FOR SEQ ID NO:104:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:104:

Ala Thr Tyr Thr Ser Gly Ala Val Ala Ser His Thr Thr Ser Arg Phe  
1 5 10 15

Thr Ser Leu Phe Ser Ser Gly Ala Ser Gln Arg Ile Gln Leu Val  
20 25 30

(2) INFORMATION FOR SEQ ID NO:105:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:105:

Ala Thr Tyr Thr Ser Gly Ala Val Ala Ser His Thr Thr Ser Gly Phe  
1 5 10 15

Thr Ser Leu Phe Ser Ser Gly Ala Ser Gln Arg Ile Gln Leu Val  
20 25 30

(2) INFORMATION FOR SEQ ID NO:106:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:106:

Glu Thr Tyr Thr Ser Gly Arg Val Ala Gly His Thr Thr Ser Gly Phe  
1                      5                      10                      15  
Thr Ser Leu Phe Ser Ser Gly Ala Ser Gln Arg Ile Gln Leu Val  
                    20                      25                      30

(2) INFORMATION FOR SEQ ID NO:107:

(i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 31 amino acids  
    (B) TYPE: amino acid  
    (C) STRANDEDNESS: single  
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:107:

Ala Thr Tyr Thr Ser Gly Gly Val Ala Gly Arg Thr Thr Ser Gly  
1                      5                      10                      15  
Phe Thr Ser Leu Phe Ser Ser Gly Ala Ser Gln Lys Ile Gln Leu Val  
                    20                      25                      30

(2) INFORMATION FOR SEQ ID NO:108:

(i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 31 amino acids  
    (B) TYPE: amino acid  
    (C) STRANDEDNESS: single  
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:108:

Glu Thr His Thr Thr Gly Arg Val Ala Gly His Thr Thr Ser Arg Phe  
1                      5                      10                      15  
Thr Ser Leu Phe Ser Ser Gly Ala Ser Gln Lys Ile Gln Leu Val  
                    20                      25                      30

(2) INFORMATION FOR SEQ ID NO:109:

(i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 31 amino acids  
    (B) TYPE: amino acid  
    (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:109:

Glu	Thr	His	Thr	Thr	Gly	Arg	Val	Val	Gly	His	Thr	Thr	Ser	Gly	
1				5					10				15		
Phe	Thr	Ser	Leu	Phe	Ser	Ser	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:110:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:110:

Glu	Thr	His	Thr	Thr	Gly	Arg	Val	Ala	Gly	Arg	Thr	Thr	Ser	Gly	Phe
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Ser	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:111:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:111:

Thr	Thr	Tyr	Thr	Ser	Gly	Gly	Val	Ala	Gly	Arg	Thr	Thr	Ser	Gly	
1				5					10					15	
Phe	Thr	Ser	Leu	Phe	Ser	Ser	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:112:



- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:112:

Lys	Thr	Tyr	Thr	Ser	Gly	Gly	Ala	Ala	Ser	His	Thr	Thr	Ser	Arg	
				5					10					15	
Phe	Thr	Ser	Leu	Phe	Ser	Pro	Gly	Ala	Ser	Gln	Arg	Ile	Gln	Leu	Val
			20						25					30	

(2) INFORMATION FOR SEQ ID NO:113:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:113:

Ser	Thr	Arg	Val	Thr	Gly	Gly	Gln	Gln	Gly	Arg	Ala	Val	His	Gly	Ile
1				5					10					15	
Ala	Ser	Leu	Phe	Ser	Leu	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20					25						30	

(2) INFORMATION FOR SEQ ID NO:114:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:114:

Ser	Thr	Arg	Val	Thr	Gly	Gly	Gln	Gln	Gly	Arg	Ala	Val	Gln	Gly	Phe
1				5					10					15	

Ala Ser Leu Phe Arg Leu Gly Ala Ser Gln Glu Ile Gln Leu Val  
 20 25 30

(2) INFORMATION FOR SEQ ID NO:115:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:115:

Ser Thr Arg Val Thr Gly Gly Gln Gln Gly Arg Ala Val His Gly Ile  
 1 5 10 15

Ala Ser Leu Phe Ser Leu Gly Ala Ser Gln Lys Asn Gln Leu Val  
 20 25 30

(2) INFORMATION FOR SEQ ID NO:116:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:116:

Ser Thr Arg Val Thr Gly Gly Gln Gln Gly His Ala Ala His Ser Leu  
 1 5 10 15

Thr Ser Leu Phe Arg Leu Gly Ala Ser Gln Asn Ile Gln Leu Val  
 20 25 30

(2) INFORMATION FOR SEQ ID NO:117:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:117:

Asn	Thr	Arg	Val	Thr	Gly	Gly	Arg	Gln	Gly	Arg	Ala	Ala	His	Ser	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Pro	Gly	Ala	Ser	Gln	Asn	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:118:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:118:

Gly	Thr	Arg	Val	Thr	Gly	Gly	Arg	Gln	Gly	Arg	Ala	Ala	His	Ser	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Pro	Gly	Ala	Ser	Glu	Asn	Ile	Arg	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:119:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:119:

Ser	Thr	Arg	Val	Ser	Gly	Gly	Gln	Gln	Gly	Arg	Ala	Ala	His	Ser	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Thr	Leu	Gly	Ala	Ser	Gln	Asn	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:120:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:120:

Ser	Thr	His	Val	Thr	Gly	Ala	Leu	Gln	Gly	Arg	Ala	Ala	Tyr	Gly	Ile
1				5				10					15		
Thr	Ser	Phe	Leu	Ser	His	Gly	Pro	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20				25						30		

(2) INFORMATION FOR SEQ ID NO:121:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:121:

Ser	Thr	Gln	Val	Met	Gly	Gly	Gln	Gln	Gly	Arg	Ala	Ala	Tyr	Ser	Leu
1				5				10					15		
Ala	Ser	Leu	Leu	Ser	Pro	Gly	Ala	Asn	Gln	Lys	Ile	Gln	Leu	Val	
			20				25						30		

(2) INFORMATION FOR SEQ ID NO:122:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:122:

Ser	Thr	Gln	Val	Met	Gly	Gly	Gln	Gln	Gly	Arg	Ala	Ala	Tyr	Ser	Leu
1				5				10					15		
Ala	Ser	Leu	Leu	Gly	Pro	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20				25						30		

(2) INFORMATION FOR SEQ ID NO:123:

- (i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 31 amino acids  
    (B) TYPE: amino acid  
    (C) STRANDEDNESS: single  
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:123:

Ser	Thr	Gln	Val	Met	Gly	Gly	Gln	Gln	Gly	Arg	Ala	Ala	Tyr	Ser	Leu
1				5					10					15	
Ala	Ser	Leu	Leu	Ser	Pro	Gly	Ala	Ser	Gln	Lys	Ile	Gln	Leu	Val	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:124:

- (i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 31 amino acids  
    (B) TYPE: amino acid  
    (C) STRANDEDNESS: single  
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:124:

Arg	Thr	Arg	Thr	Val	Gly	Gly	Gln	Val	Gly	His	Ser	Val	Arg	Gly	Phe
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Ala	Gly	Ser	Ala	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:125:

- (i) SEQUENCE CHARACTERISTICS:  
    (A) LENGTH: 31 amino acids  
    (B) TYPE: amino acid  
    (C) STRANDEDNESS: single  
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:125:

Gln	Thr	Arg	Thr	Val	Gly	Gly	Gln	Val	Gly	His	Ser	Val	Arg	Gly	Phe
1				5					10					15	

Thr Ser Leu Phe Ser Ala Gly Ser Ala Gln Asn Ile Gln Leu Ile  
 20 25 30

(2) INFORMATION FOR SEQ ID NO:126:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:126:

Gln Thr Arg Thr Val Gly Gly Gln Val Gly His Ser Val Arg Gly Phe  
 1 5 10 15  
 Thr Ser Leu Phe Ser Ala Gly Ser Ala Gln Asp Ile Gln Leu Ile  
 20 25 30

(2) INFORMATION FOR SEQ ID NO:127:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:127:

Gln Thr Arg Thr Val Gly Gly Gln Val Gly His Ser Val Arg Gly Phe  
 1 5 10 15  
 Thr Ser Leu Leu Ser Ala Gly Ser Ala Gln Asn Ile Gln Leu Ile  
 20 25 30

(2) INFORMATION FOR SEQ ID NO:128:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:128:

Gln	Thr	Arg	Thr	Val	Gly	Gly	Gln	Val	Gly	His	Ser	Val	Arg	Gly	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Ala	Gly	Ser	Ala	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:129:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:129:

Gln	Thr	Arg	Thr	Val	Gly	Gly	Gln	Met	Gly	His	Gly	Val	Arg	Gly	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Ala	Gly	Ser	Ala	Arg	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:130:

(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 31 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:130:

Gln	Thr	His	Thr	Val	Gly	Gly	Gln	Met	Gly	His	Gly	Val	Arg	Gly	Leu
1				5					10					15	
Thr	Ser	Leu	Phe	Ser	Ala	Gly	Ser	Ala	Gln	Asn	Ile	Gln	Leu	Ile	
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:131:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:131:

Gln	Thr	His	Thr	Val	Gly	Gly	Gln	Met	Gly	His	Gly	Val	Arg	Gly	Leu
1				5				10						15	
Thr	Asn	Leu	Phe	Ser	Ala	Gly	Ser	Ala	Gln	Asn	Ile	Gln	Leu	Ile	
		20					25						30		

(2) INFORMATION FOR SEQ ID NO:132:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 24 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:132:

Glu	Thr	His	Val	Thr	Gly	Gly	Ser	Ala	Gly	His	Thr	Val	Ser	Gly	Phe
1				5				10						15	
Val	Ser	Leu	Leu	Ala	Pro	Gly	Ala								
				20											

(2) INFORMATION FOR SEQ ID NO:133:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 31 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Xaa
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /label=Ahe  
/note=2-amino heptanoic is butyl alanine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:133:



Phe Val Ser Leu Leu Ala Pro Gly Ala Lys Gln Asn Val Gln Leu  
20 25 30

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:134:

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